

A Model for Delivering Population Health Across the Care Continuum

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ABSTRACT

OBJECTIVES: While most payers have been slow to embrace models that would incentivize value-based care delivery, providers have a unique opportunity to take the lead in this endeavor. We examine best practices to develop a Population Health Care Delivery Model (PHCDM) to guide delivery systems as they design and pilot population health programs across the continuum of patient care and to facilitate their coordination with individual clinicians.

STUDY DESIGN: Systematic review.

METHODS: A systematic review of observational studies and health system case studies was conducted. We examined the effectiveness of population health-oriented programs and specific quality improvement initiatives in improving the health outcomes of patient populations across the continuum of care. Our assessment was primarily focused on the structural and design features of successful programs.

RESULTS: We find that population health improvement is a result of (1) prevention and well care and (2) disease management initiatives that are both patient-centered and population-oriented in structure. We identified differences in care delivery objectives as the severity of disease increases across the patient care continuum. The corresponding PHCDM presents a framework for providers to systematically pilot and evaluate population healthcare programs.

CONCLUSIONS: The delivery system–clinician partnership is essential to coordinating evidence-based practices across the care continuum and, as a result, strengthening relationships with payers to further incentivize population healthcare delivery.

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There is growing recognition that paying for the delivery of high-quality, efficient healthcare is necessary to improve population health. Such value-based payment systems place a growing amount of revenue at risk for clinicians, although most continue to practice in care models developed under fee-for-service incentives. This asymmetry has raised concerns among clinicians about these systems' implications for patient care, reporting requirements, and payment levels.¹ The concurrent shift toward increased employment of physicians in large delivery systems² may reflect, in part, clinicians looking to their delivery systems to help navigate the complexity of value-based payment systems.

At the core of these emerging payment models is the expectation that care providers must be accountable for the health outcomes of entire patient populations across the continuum of care. Delivery systems must be reoriented to achieve these aims. At times, this work will be inexact, challenging, and even conflicted when other health system stakeholders' responses to the system's new population health objectives are asynchronous or askew with the providers' efforts. Alternately, the pace of advancement toward population health management will accelerate if the delivery system's efforts are supported by robust payment systems that are developed in collaboration with payers and reward incremental progress toward value-based care objectives. Although most payers have been slow

to fully embrace alternative payment models (APMs) that would strongly incentivize value-based care delivery and promote population health, providers have a unique opportunity to take the lead in this endeavor.

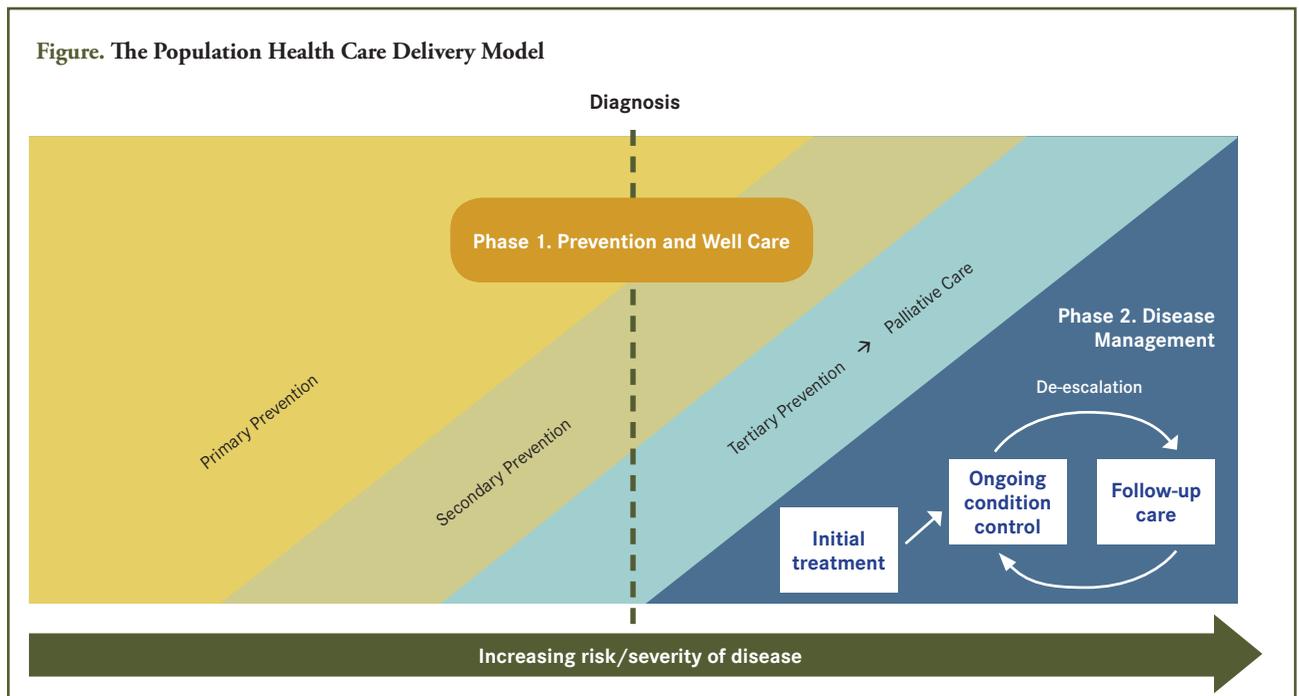
Delivery systems are uniquely positioned both to help clinicians adapt to new payment regimes and to lead the way in developing and evaluating new models of population healthcare delivery. Delivery systems can play key roles in innovation, infrastructure investment, measurement, and contracting, as well as provide strategic direction and leadership in this enterprise. However, a delivery system's investments and reorientation toward system-level functions³ could lead to diminished emphasis on patient-centeredness in care at the individual level. To ensure that patient care is not compromised, the delivery system must engage and collaborate with all stakeholders, particularly clinicians, and reflect their priorities in their new population healthcare delivery models.⁴⁻⁷ This system-clinician partnership is essential to coordinating evidence-based practices across all silos of the care continuum and strengthening relationships with payers to incentivize population healthcare delivery.

Balancing Population-Centered Care and Patient-Centered Care

It is a long-established ethic of the individual clinician to focus intently and autonomously on the individual patient in the exam room and deliver optimal patient-centered care in accordance with the patient's preferences and needs.⁸ Likewise, each delivery system's approach to delivering high-value population health must be unique

to the needs of the population it serves. Where these approaches are successful, it will be in no small part because individual clinicians are effective in their new roles as executors of the delivery system's population health initiatives and resources. However, individual clinicians may view these tasks as in conflict with their traditional patient-centered care delivery approaches, occupying time and resources that should be devoted to the patient's immediate needs in the exam room. Hence, clinicians depend on the delivery system to recognize how they are being pulled in these 2 different directions and set reasonable expectations as they grow accustomed to their dual roles. Balancing these expectations requires the system to be diligent in monitoring clinician deviations from evidence-based recommended care practices and distinguish systematically between appropriate variation (eg, due to high-acuity complex patient needs) and avoidable variation in practice.

Ideally, clinicians' care delivery models and the delivery system's strategy are well-coordinated to ensure that the patient population receives efficient population-centered care while individual patients continue to receive effective patient-centered care. In this paper, we present a new framework, the Population Health Care Delivery Model (PHCDM) (Figure), to guide delivery systems as they design, pilot, and implement population health programs across the continuum of patient care and to facilitate their coordination with individual clinicians. The care continuum, as patients experience it, is useful for framing the objectives of a population health-oriented system in a way that recognizes the individual clinician's autonomy



and patient-centered perspective. In the following sections, we explain the aspirational goals of the PHCDM, rather than specific recommended tasks, recognizing that the effective delivery of population health requires nuanced approaches tailored to the needs of different patient populations. We also delineate new terms of collaboration between the delivery system and the front-line clinician within this framework.

Preparing for Population Health

As the delivery system embarks upon population health management, it must first obtain complete and timely information about the population's health needs and preferences. To do this, the system must work with clinicians, public health agencies, and community organizations to acquire and review disparate data sources. These sources may include risk assessments, surveys, electronic health records (EHRs), and claims data, which can be used to conduct integrated data analyses to classify (1) populations with elevated risks of adverse outcomes and (2) populations for whom population health programs have the greatest potential for improving outcomes. Performing this analytic exercise affords the delivery system the capacity to provide clinicians with key information for realigning and implementing targeted evidence-based initiatives. This data platform is crucial for measuring progress and conducting self-evaluations of the system's population health initiatives, which will be invaluable in gaining buy-in and financial support from local community agencies and health plans.

The Population Health Care Delivery Model

Phase 1. Prevention and well care. If the goals of population health are to be realized, the focus must extend beyond the traditional clinical setting to reduce the incidence and prevalence of disease. Accordingly, prevention and wellness efforts must address both clinical risk factors and social determinants (eg, physical environment) that cause or exacerbate illnesses.⁹ Traditionally, clinicians have provided limited preventive care, focusing instead on diagnostics and postdiagnosis patient care.¹⁰ The delivery system needs to invest more in primary and secondary prevention, facilitating clinicians' prediagnosis delivery of care.

Additionally, the system must establish and coordinate care teams. This is particularly necessary because physicians often have limited bandwidth to prescribe, let alone provide, recommended preventive services.^{11,12} Systems may consider emulating Maine's Primary Care Medical Home Pilot or Vermont's Blueprint for Health in their use of the Community Health Team (CHT)¹³ structure, which includes care coordinators, nutritionists, behavioral and mental health specialists, nurses and nurse practitioners, and social, public health, and community health workers. Relative to established care delivery models, it is more efficient and cost-saving for the delivery system to identify prevention priorities and for physicians to manage

CHT teams to carry out screenings and other well-care tasks (eg, breast self-examination education, creatinine screening for chronic kidney disease).^{14,15} Although the composition of care teams will vary with the needs of specific patient populations, careful consideration should be given to the competencies and capacity of the team for delivering targeted prevention strategies.

Primary prevention. The delivery system should evaluate and monitor its patient population's environment and identify potential risks for triggering certain conditions well before diagnosis. Systems can do so following the model tested by the CDC, which uses claims data and geospatial analytics to identify local hot spots for high-risk conditions, such as diabetes.^{16,17} Others use DNA sequencing to pinpoint individuals with genetic predispositions that warrant early intervention. Evidence suggests genetic screenings are comparable in costs to traditional screening activities and may yield more specific clinical insights, particularly for diagnosis of common cancers (eg, cervical, colorectal, breast).¹⁸ Beyond clinical information, the system should also integrate social determinant factors. Such initiatives may include obtaining data from local police departments and school districts to account for behavioral risk factors.¹⁹ Risk stratification efforts can indicate priority areas and opportunities for collaboration with community and public health organizations, potentially including delivery system partnerships with organizations such as the Occupational Safety and Health Administration or local housing coalitions to mitigate risks in the work and home environments (eg, to reduce mold and lead exposure).^{20,21} Because primary prevention activities diverge the most from traditional disease management, delivery systems should consider leveraging federal APMs (eg, Accountable Health Communities) and local or state funding²² to pilot strategies for aligning community and clinical services to address the health and social needs of patient populations.

Secondary prevention. Secondary prevention programs rooted in the Chronic Care Model are generally effective in detecting disease in early states and preventing further disease progression.²³ To slow the growth of many conditions, the delivery system should increase screening rates for individuals with high-risk clinical indicators, such as obesity, hypertension, and high blood glucose levels. Lifestyle modification programs like the Diabetes Prevention Program (DPP) can substantially reduce the risk of many chronic conditions.^{24,25} The DPP model alone has been shown to reduce the risk of developing diabetes by more than 50% among adults with prediabetes. As the DPP expands as a covered benefit for Medicare beneficiaries,²⁶ with a likely ripple effect on private health plans, delivery systems should strongly consider leveraging similar evidence-based programs and other social services²⁷ as cost-saving strategies for improving health

outcomes. Determinations to implement such interventions may be most easily made in communities where population turnover is relatively low, as any savings would be more likely to accrue to the investing delivery system. In higher-turnover communities, rigorous evaluations accounting for local conditions may be needed to demonstrate cost-effectiveness.

Tertiary prevention. Upon diagnosis, the delivery system's objective should be to coordinate health services to maximize patient function in a manner that avoids further health deterioration and onset of comorbid conditions. The system can provide care teams with information technology tools to assign patients individual risk scores using pharmacy data, for example, to help clinicians track the likelihood of future hospitalizations and prioritize preventive services accordingly.¹⁵ These preventive actions may be as simple as administering routine flu shots and other immunizations to prevent further complications. Moreover, following the lead of the Vermont Chronic Care Initiative,^{15,28} the delivery system must facilitate ways to complement the care team's prescribed regimens with medication therapy management, motivational coaching, health literacy, and self-management skill-building to increase patient adherence and engagement. Clinicians will likely need to draw upon primary prevention resources and other community resources to provide patients with additional self-care support, such as smoking cessation and healthy cooking workshops.

Phase 2. Disease management. Although the delivery system may define its population health priorities, the individual clinician will ultimately execute the corresponding initiatives. For instance, the delivery system may suggest cost-effective, conservative therapy options, as through decision support tools, and the clinician is expected to select from among them. However, the clinician may have important insights that lead them to recommend a different, less conservative therapy for a given patient. It is appropriate for the delivery system to enable and support such deviations when justified, even when they run counter to the delivery system's established protocol. Emory Healthcare's sepsis protocol is one such model of an effective collaborative intervention. Emory's EHR system includes a "trigger" algorithm that uses patients' vital signs to alert clinicians when a patient may be septic. The trigger provides the care team with several diagnostic options (eg, urine tests) to scan for infection. If the care team determines that the patient is septic, then the EHR will prompt the care team leader—often the physician—with a recommended evidence-based order set. In this model, the delivery system attempts to make delivering population healthcare less of an encumbrance by equipping clinicians with treatment suggestions based on real-time data analysis. Ultimately, however, the system allows the clinician to decide what orders are best for the individual patient.

The delivery system should further support clinicians by taking steps to maximize access to prescribed therapies. This may involve addressing barriers in patient transportation, finances, and noncompliance. Likewise, shared decision-making tools provided by the delivery system, such as patient dashboards and other technology-enabled devices for evaluating patient symptoms and care plan adherence, can assist clinicians in maintaining strong communication with patients and tracking their health needs.

After setting their initial treatment plans, clinicians should focus on minimizing exacerbation of established conditions and recalibrating treatment plans as needed. Quality evaluations (eg, Six Sigma) should prompt care teams and the delivery system to jointly devise both patient- and population-level interventions to address any identified gaps in treatment.²⁹ Clinicians can evaluate treatment appropriateness and effectiveness using quality measures in conjunction with physical examinations and patient-reported feedback. These patient-level measures should be integrated into delivery system performance measurement systems and analyzed to ensure that all interventions and initiatives are, in fact, improving population health outcomes.

As conditions become more advanced and complications arise, patients will require regular follow-up care. Both the delivery system and care team should look to identify potential "break-down" points in maintenance therapies for ongoing conditions and minimize risks that could trigger acute care episodes. The intent is to manage the population with low-intensity care management and fewer clinician interactions while preventing escalations in care. Banner Health has undertaken this approach through a unique partnership with Philips, using telehealth software to remotely monitor patient vitals using biometric sensors and identifying patients at risk for acute flare-ups.³⁰ For patients facing severe conditions that will likely necessitate hospice or other long-term care services, and for those who do not respond to efforts to mitigate risks of more frequent exacerbations, the care team should consider initiating end-of-life education and planning conversations to re-establish the patient's preferences.

Concerted efforts must also be made to institute systemwide processes to provide seamless transitional care across settings, including the patient's home. Delivery systems should leverage dedicated personnel to manage patient flow (eg, case managers) and technological tools to track transitions between and within care facilities. For instance, Christiana Care Health System created its own CareLink system to improve its traditional discharge process by streamlining tasks such as medication reconciliation between pre- and post hospitalization.³¹ For most patients, routine clinical follow-ups or telehealth consults will be sufficient post discharge. For more complex patients, systems may consider extending care to the patient's home using community paramedicine services in

addition to contracting with home health agencies. Community paramedics can help reduce nonemergent hospital readmissions by following up with recently discharged patients, assessing the home environment, helping patients comply with discharge instructions, and transporting patients to more appropriate care settings (eg, urgent care centers).^{19,32}

As the patient's condition progresses to more advanced stages, the focus should shift to providing more comfort and palliative care, rather than preventive or active treatment. The delivery system should consider reconstituting the patient's care team to include more coaching, therapeutic guidance, and pain management providers to reduce patient isolation, stress, and discomfort. To this extent, it is important for the system and its clinicians to continue addressing the psychosocial and home needs of these complex patients. The University of Wisconsin's commitment to delivering high-quality palliative care is reflected in its provision of theater-style workshops for clinicians facilitating end-of-life conversations with patients.³³ Similar communication and skills training programs should be offered by all delivery systems, distinguishing between primary care and specialist approaches as appropriate.³⁴ Incorporating additional social aspects of palliative care—a focus on emotional well-being, caregiver burdens, and bereavement—can also be a valuable complement to the broader goals of population health care delivery.

Implementation Challenges

Transition toward a population health orientation will be smoother in areas where payers have adopted contracts and incentives that are well aligned with the delivery system's new goals and priorities. The challenge, however, is that the uncertainty of investment return (as in the case of populations with high rates of turnover) deters payers from taking on significant risk.³⁵ Given this dynamic, the delivery system must consider modifying its internal compensation structure to align clinician payment with value-based care delivery, as well as leveraging outcome data from phase 1 and phase 2 pilots to demonstrate feasibility to health plans. The delivery system must provide proof of concept that it can in fact bend the cost curve while delivering high-quality care. Recognizing this is an ambitious endeavor, some delivery systems will be more effective in obtaining buy-in from payers and their clinicians if they demonstrate quality and financial gains after implementing more feasible medical care-focused population health interventions first. For systems in less mature markets, this suggests that care teams may have to focus more on phase 2 of the PHCDM to create immediate efficiency gains through better management of chronic conditions, transitions in care gaps, and reducing high-cost unexplained variations before investing in phase 1 strategies with a longer time horizon for return on investment. As delivery systems gradually build up their organizational capacity for value-based care and navigate both phases of

the PHCDM, payers, both public and private, will increasingly provide financial support in tandem.

Concluding Remarks

Population health management is a fundamental transformation of how healthcare is delivered. This shift requires the delivery system to embrace the principles of a learning system³⁶ to improve the health of the population while allowing clinicians the flexibility to address the unique needs of patients. The delivery system depends on a dedicated team of healthcare professionals across the care continuum to execute population health initiatives precisely. Moreover, these clinicians must also deliver care insightfully by communicating with leadership about situations in which interventions systematically impede effective patient care and, in parallel, offering solutions that allow the system to further its population health improvement goals. Thus, delivery of high-value care requires delivery systems to coordinate both population-centered care and patient-centered care.

Although there is no standardized approach for how population health practices should be integrated into clinical operations, the PHCDM offers a framework for delivery systems to better understand and execute the objectives of delivering population health-oriented and patient-centered care jointly throughout the course of a patient's care experience.

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